



Janice K. Brewer  
Governor

John S. Halikowski  
Director

Arizona Corporation Commission  
Office of Railroad Safety  
Attn: Chris Watson  
1200 W Washington Street  
Phoenix, AZ 85007

ORIGINAL

**Arizona Department of Transportation**  
**Intermodal Transportation Division**

206 South Seventeenth Avenue Phoenix, Arizona 85007-3213

February 23, 2011



Floyd Roehrich Jr.  
State Engineer

Arizona Corporation Commission  
**DOCKETED**

FEB 28 2011

DOCKETED BY	
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RE: Revised Application to widen existing public at-grade railroad crossing  
Project: US 60 Widening, 99<sup>th</sup> Avenue to SR 303L  
Federal Project # ARRA-060-B(201)A  
ADOT Tracs # 060 MA 139 H6866 01C  
ACC Docket RR-02635B-10-0305

Greenway Road DOT 025 651 J  
111<sup>th</sup> Avenue DOT 025 397 J  
107<sup>th</sup> Avenue DOT 025 398 R  
103<sup>rd</sup> Avenue DOT 025 399 X  
Burlington Northern Santa Fe Railway

Mr. Watson,

The original application was submitted to allow the Burlington Northern Santa Fe Railway (BNSF) to modify and/or install additional railroad signals between the railroad and Grand Avenue as identified at each crossing. This will allow ADOT to modify the road intersection adjacent to the crossing and bring all crossings up to current standards, including installation of LED flashers. Agreements were executed with the BNSF to allow them to purchase and install the extra equipment. Copies of those agreements were included in the original application.

This revised application includes additional work of adding constant train detection equipment at 111<sup>th</sup>, 107<sup>th</sup> and 103<sup>rd</sup> avenue, replacement of worn out equipment at 111<sup>th</sup> and 107<sup>th</sup> avenue, and updating pre-emption timing at all 4 crossings. Greenway road will also have median based gates on both sides of the crossing and thus no longer need cantilevered flashing lights. The extra work will be paid by either ARRA funds or FHWA Railway-Highway grade crossing funds (Section 130) as detailed later in this revised application.

The enclosed unsigned agreement addendums include final cost estimates and signal plan sheets showing the final signal work to be done at each crossing. The Addendums are expected to be executed between ADOT and BNSF in the next few months.

This work is part of ADOT project TRACS H6866 01C, which is widening the US 60/ Grand Avenue (Grand Ave) from SR 303 to 99<sup>th</sup> Avenue. This project is in construction and is being funded by the American Reinvestment and Recovery Act of 2009. This project was authorized by the Maricopa

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Association of Governments in 2009. This overall project also involves the widening at the BNSF Ennis Spur which is being covered by ACC Docket No. RR-02635B-10-0234 (DOT 025 700 D).

All 4 crossings have been installed/ modified in the past as part of the Section 130 or publicly funded work. All 4 crossings are being modified by ADOT, and will then be turned back to the local road agency after our Grand Avenue widening project is complete. Greenway Road will be turned back to the city of Surprise, while the other 3 crossings will be turned back to Maricopa DOT.

A separate letter was sent to your office detailing the improvements to Grand Avenue from SR 303 in Surprise down to 83<sup>rd</sup> avenue in Peoria. This work is being done as part of this ARRA funded project and an adjacent ARRA project in Peoria.

According to estimates, the following BNSF jobs are created/saved as part of the work at the 4 crossings based on 8 hour days:

Greenway Road	307 days (signal and surface work)
111 <sup>th</sup> Avenue	200 days
107 <sup>th</sup> Avenue	179 days
103 <sup>rd</sup> Avenue	175 days

Other Jobs created/Saved not covered by this docket but in our overall project

Ennis Spur	298 days (signal and surface work)
Project wide flagging	300 days

Entire project BNSF	1,459 days
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ADOT Contractor has reported a total of 90 jobs created or saved as of December 31, 2010. this includes work inside and outside of the BNSF right of way

### **1. Project Location and Description**

This overall road project will widen approximately 12 miles of US 60 between 99<sup>th</sup> avenue and SR 303L from 4 lanes to 6 lanes. The roadway widening project is in construction and is expected to be finished by Spring 2011. Work at Greenway Road is not anticipated to start until BNSF signals are relocated. Road work at the other 3 crossings is complete.

No work is being done where existing railroad signals are in the way until BNSF is allowed to move the signals. The ADOT contractor was able to modify the existing curbs at 111<sup>th</sup>, 107<sup>th</sup> and 103<sup>rd</sup> avenue.

For All crossings the ADOT contractor will be modifying the intersection between US 60 and the cross road to reduce congestion. None of the crossings are being widened at the railroad crossing and except for Greenway Road, none of the crossings are being shifted.

Greenway Road Crossing (DOT 025 651 J)

The Greenway Crossing is located in the upper 1/3 of the project. Work will consist of shifting the crossing approximately 5 feet to the west to provide a better alignment. All of this work is in the City of Surprise, Arizona.

The original work at this crossing consisted of relocating existing crossing signals including cantilevered flashing lights. BNSF asked ADOT to revise the design so that median based flashing lights and gates can be installed on each side of the crossing. ADOT was able to do this.

The revised BNSF work at the crossing will consist of relocating existing gate/flasher unit and installing median based gate/flasher units. No cantilevers will be installed All flashing lights will be upgraded to LED bulbs. BNSF will also install additional crossing panels. In addition, signal pre-emption timing will be updated.

#### 111<sup>th</sup> Avenue Crossing (DOT 025 397 J)

The 111<sup>th</sup> Avenue crossing is in the lower 1/3 of the project. Original work consisted of BNSF replacing existing signal equipment between US 60 and the crossing to conform to the relocated curb. Revised work includes replacing the other 3 flasher/gate units and installation of constant warning detection. In addition, signal pre-emption timing will be updated.

#### 107<sup>th</sup> Avenue Crossing (DOT 025 398 R)

The 107<sup>th</sup> avenue crossing is in the lower 1/3 of the project. Original work will consist of BNSF replacing signals between the crossing and US 60 where curb lines were moved, and installing 1 new cantilevered flashing light on the north side of the crossing. Revised work consists of replacing the other 3 flashing light/gate units and installation of constant warning detection equipment. In addition, signal pre-emption timing will be updated.

#### 103<sup>rd</sup> Avenue Crossing (DOT 025 399 X)

The 103<sup>rd</sup> avenue crossing is in the lower 1/3 of the project. Work will consist of BNSF relocating flashing light and gate and installing new cantilevered flashing lights on the each side. Revised work consist of also installing constant warning detection equipment. In addition, signal pre-emption timing will be updated.

## **2. Why the crossing work is needed**

### **NOTE: No updates since original application**

These crossings are on crossroads that intersects US 60, and intersection improvements are needed to handle the increased traffic volume and turning movements to/from US 60.

Per Page 11 of the 2007 Final Traffic Report, vehicle crash data is as follows based on 2002 to 2004 data. 93 % were vehicle-vehicle collisions, and of those, 68% were rear-end collisions

<u>Road</u>	<u>Vehicle-vehicle accidents at intersection</u>
Greenway Rd	44
111 <sup>th</sup> Ave	21

107 <sup>th</sup> Ave	19
103 <sup>rd</sup> Ave	18

Review of FRA accidents showed the following incidents at the 4 crossings:

- a) Greenway Road: 3 accidents, including 2 with injuries and 1 fatality (Accidents in 2005, 2004 (1 injury) 2001 (1 fatal, 4 injured).
- b) 111<sup>th</sup> Avenue: 2 accidents total with no injuries or fatalities (1991, 1975)
- c) 107<sup>th</sup> avenue: 5 total with 1 injury (2 in 2004, 1 injury in 2000, 1 each in 1983, 1978)
- d) 103<sup>rd</sup> avenue: 10 accidents total with 2 involving injuries (2 in 2006, 1 in 2005, 3 in 2004 inc. drive around causing injury accident, 1 in 1999; 1980, 1979 and 1977.

Accident reports indicated that most of the accidents involved vehicles and/or carts stopped on the tracks, driving around gates or stopping then moving in front of the train.

### 3. Construction Phasing

The overall road project is in construction. BNSF has been authorized to install the new crossing surfaces. The ADOT Contractor has been notified that existing Railroad signals need to be protected in place. Curb work has been completed at 111<sup>th</sup>, 107<sup>th</sup> and 103<sup>rd</sup> avenue. Work is on hold at Greenway until signals are relocated.

Once an opinion and order is issued, BNSF will relocate the signal equipment within 6 months.

### 4. Maintenance of the crossing

#### No updates since original application

BNSF will be responsible for installing and maintaining the crossing surface and signal equipment. ADOT will be responsible for constructing the road approaches outside of BNSF responsibility. After construction is complete, the crossings will be turned back to the local road authorities, and they will maintain the approaches.

### 5. Project Funding

Funding will be provided thru the Federal Highway Administration thru the American Recovery and Reinvestment Act and Section 130 / Railway-highway grade crossing safety funds as identified below:

Costs are as follows:

A) Greenway Crossing		\$413,782 total cost
	BNSF Signal Cost	\$383,584
	BNSF Surface Cost	<u>\$ 30,198</u>
	ARRA funding	\$413,782
B) 111 <sup>th</sup> Avenue		
	i. Total Signal Cost	\$ 338,523
	ii. ARRA funding	\$16,152
	iii. Section 130 funding	\$322,371
C) 107 <sup>th</sup> Avenue		
	i. Total Signal Cost	\$319,005

ii. ARRA funding	\$194,273
iii. Section 130 funding	\$124,732
D) 103 <sup>rd</sup> avenue	
i. Signal Cost	\$286,436
ii. ARRA funding	\$201,001
iii. Section 130 funding	\$ 85,435

**6. Other information (based on typical Staff Data Requests):**

**NOTE: no updates since original application to any of these items.**

1. Provide Average Daily Traffic Counts for each of the locations.  
Per US 60 Improvement Feasibility Report, Page 10 & 11

<u>Road Name</u>	<u>2007 ADT</u>
Greenway Road	696** Peak traffic only
111 <sup>th</sup> Avenue	1007** Peak traffic only
107 <sup>th</sup> Ave	18562
103 <sup>rd</sup> Ave	8123

NOTE: Greenway and 111<sup>th</sup> avenue are peak traffic only. No full ADT info available for those 2 crossings

2. Please describe the current Level of Service (LOS) at each intersection

Per 2007 Final Traffic Report Page 35

<u>Intersection</u>	<u>2007 LOS</u>
Greenway Rd	D
111 <sup>th</sup> Ave	D
107 <sup>th</sup> Ave	C
103 <sup>rd</sup> Ave	C

3. Provide any traffic studies done by the road authorities for each area.

a) Final Design Concept Report US 60 Grand Avenue SR 303L to 99<sup>th</sup> Avenue, January 2007

b) Final Traffic Report Dated January 2007 for Final Design Concept Report

c) US 60 Improvements Feasibility Report (note, MAG has not formally adopted this study as of July 20, 2010). A copy of this report is included in electronic format to the ACC.

Other studies (no copies available):

- Regional Transportation Plan (Approved by MAG council in November 2003)
- Grand Avenue Northwest Corridor Study January 2003

4. Provide the population of the City the crossing is located in.

Greenway Road is in Surprise and has a population of 94,899 persons per the 2009 Census

111<sup>th</sup>, 107<sup>th</sup>, 103<sup>rd</sup> Ave are in Youngtown and has a population of 4,895 per the 2009 census.

5. Provide what warning devices are currently installed at the crossing.

- a) Greenway Road: Cantilevered flashing lights and gate/flashing light units on each side. No Median mounted warning devices.
- b) 111<sup>th</sup> Avenue: Road edge and median mounted gate/flashing light units each side.
- c) 107<sup>th</sup> Avenue: 1 gate/flashing unit and 1 post mounted flashing light unit South side of crossing; Road edge and median mounted gate/flashing light units on North side of crossing.
- d) 103<sup>rd</sup> avenue: 1 gate/flashing unit on each side of the road.

6. Provide distances in miles to the next public crossing on either side of the proposed project location. Are any of these grade separations?

There are no grade separated crossing of the BNSF in the project area.

a) Greenway Road Crossing

US 60 (DOT 025 700 D3) is at-grade and 0.6 miles Southeast of the crossing. Dysart Road (DOT 025 393 G) is at-grade and is 0.85 miles Northwest of the crossing.

b) 111<sup>th</sup>/107<sup>th</sup>/103<sup>rd</sup> avenue. The 3 crossings are next to each other.

99<sup>th</sup> avenue (DOT 025 400 P) is at-grade and located 0.57 miles Southeast of 103<sup>rd</sup> avenue. Thompson Ranch Road (DOT 025 631 X) is at-grade and located .96 miles Northwest of 111<sup>th</sup> avenue.

7. How and why was grade separation not decided on at this time? Please provide any studies that were done to support these answers.

The Maricopa Association of Government (MAG) completed the Grand Avenue Northwest Corridor Study in 2003. It listed 3 priorities for Grand Avenue/ Highway US 60. The first priority was to widen Grand Avenue to 6 lanes, and for McDOT to prepare a study for extending El Mirage road at Grand Avenue.

The 2<sup>nd</sup> priority involved increased transit systems and the 3<sup>rd</sup> priority was to implement grade separation at key intersections to enhance the capacity of the corridor (page 5 of the Feasibility Report)

Project Tracs H6866 01C was designed to widen Highway US 60 and perform minimal cross road improvements as part of the 1<sup>st</sup> priority. Due to funding and project schedule issues, no grade separation projects were considered in the first phase of the US 60 corridor improvements. This Application covers work by this Project Tracs H6866 01C.

Project Tracs H7327 was created to evaluate further improvements to the Highway US 60 corridor from SR 303 to SR 101. The US 60 Improvements Feasibility Report (Feasibility Report) was developed from this project and includes potential grade separation of Bell Road from the BNSF, and 103<sup>rd</sup> avenue from the BNSF.

Any grade separation would also include separation from Highway US 60/ Grand Avenue and require a traffic interchange or other method to allow traffic access between Grand avenue and the cross road. The report identified alternatives and which grade separation projects to pursue and has been completed by ADOT and is awaiting approval by the Maricopa Association of Governments.

The Recommended alternatives are listed starting on Page 64 of the Feasibility Report and also on page III of the Executive Summary. A detailed summary of all the intersection improvements are listed on page 36 and 37 of the Feasibility Report. The cost of all the improvements exceeds the current budget, and further studies will be needed to determine when to construct the improvements.

This Report has identified the following priorities for grade separation and/or intersection improvements:

High priority projects as recommended in the study pending MAG approval are as follows:

1. Bell Road Interchange (DOT 025 392 A)
2. 103 Ave overpass( DOT 025 399 X)
3. Thunderbird Road Intersection (No Railroad)
4. Greenway Road Intersection

The Feasibility study took into account engineering analysis, public input, and Emergency access to the 2 hospitals adjacent to Grand Avenue and other issues.

8. If this crossing was grade separated, provide a cost estimate of the project.  
Unknown costs. Estimate \$20,000,000++ per crossing due to the urbanized location and the need to provide connections between Grand Avenue and the cross road and other issues.
9. Please describe what the surrounding areas are zoned for near this intersection. i.e. Are there going to be new housing developments, industrial parks etc.

Greenway Road Crossing: Surrounding area zoned Residential on both sides and appears well developed. BNSF vehicle offload facility is Southeast of the crossing

111<sup>th</sup>, 107<sup>th</sup>, 103<sup>rd</sup> Avenue Crossings: Area to the immediate South is Commercial while other areas are Residential. The Area Northeast of 107<sup>th</sup> Avenue and Northwest of 103<sup>rd</sup> Avenue is zoned Medical Center

10. Please supply the following: number of daily train movements through the crossing, speed of the trains, and the type of movements being made (i.e. thru freight or switching). Is this a passenger train route?

Per the FRA Website, train volumes are as follows:

Greenway Road: 15 total train movements, 2 of them switching

111<sup>th</sup>, 107<sup>th</sup>, 103<sup>rd</sup>: 13 total train movements, none of them switching

11. Please provide the names and locations of all schools (elementary, junior high and high school) within the area of the crossing.
  - All Schools are in the Dysart School District
  - Surprise Elementary School, 12907 Greenway Road; El Mirage, Az 85335. 623-876-7400. Located approximately ½ mile West of the Greenway Crossing.
  - Per Dysart School District, there are no schools or students in the Youngtown/ Sun City Area.

12. Please provide school bus route information concerning the crossing, including the number of times a day a school bus crosses this crossing.

Per Tracy Keily (tracy.keily@dysart.org), Bus Router for Dysart School District, There are a total of 38 school bus crossings per day at the Greenway Road Crossing. There is no bus traffic over the 111<sup>th</sup>, 107<sup>th</sup> or 103<sup>rd</sup> avenue crossing.

13. Please provide information about any hospitals in the area and whether the crossing is used extensively by emergency service vehicles.

Boswell Memorial Hospital. 10401 W Thunderbird Ave, Located to the north of 103<sup>rd</sup> and 107<sup>th</sup> avenue crossings.

Sun Health Del E Webb Hospital, 14502 W Meeker Ave, 3 ½ miles NW of Greenway Crossing

Per input from the City of Surprise and El Mirage, Greenway Road is used for Fire Department access between the 2 cities

Per input from Boswell Memorial Hospital, 107<sup>th</sup> and 103<sup>rd</sup> avenue crossings are used extensively by EMS services to access the hospital from Youngtown, El Mirage and Peoria. Per Section 7.1.2 on page 40 of the Feasibility report, they also report that train delays are not an issue.

14. Please provide total cost of the railroad improvements to each crossing.  
Cost described above.

15. Provide any information as to whether vehicles carrying hazardous materials utilize this crossing and the number of times a day they might cross it.

No factual data is available.

16. Please provide the posted vehicular speed limit for the roadway.  
Greenway Road is posted as 25 mph.  
111<sup>th</sup> avenue is posted between 30 and 35 mph  
107<sup>th</sup> avenue is posted 30 mph on each side  
103<sup>rd</sup> is posted between 25 and 30 mph in the crossing zone.

17. Do any buses (other than school buses) utilize the crossing, and how many times a day do they cross the crossing.

No factual data is available.

18. Please indicate whether any spur lines have been removed within the last three years inside a 10 mile radius of any crossings covered in this application. Please include the reason for the removal, date of the removal and whether an at-grade crossing or crossings were removed in order to remove the spur line.

No known data on spur closure in the last 10 years. Portion of the Ennis Spur leading into Luke Air Force Base was closed/ removed after 2001 (End of Webb Spur 6 rail miles away)

19. Please fill in the attached FHWA Grade Separation Guidelines Table, (from FHWA's 2007 revised second edition Railroad Highway Grade-Crossing Handbook, page 151) with a yes or no



answer as to whether each item applies. Also, please provide all information to support your answers of yes or no (i.e. vehicle delay numbers, any calculations that were performed to get the answers).

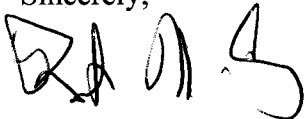
Traffic delay/day calculations summarized below.

20. Based on the current single track configuration at the crossings specified by this application, please provide the current traffic blocking delay per train. Please indicate the time in which vehicular traffic is delayed (1) to allow the train to pass at a crossing and (2) due to trains stopped on the track for any purpose. The delay is measured from the point that the warning devices are activated at the crossing to the time after the train has cleared the crossing and the warning devices are reset.

Based on correspondence from Maricopa DOT and City of Surprise, no noticeable delay occurs at the 4 crossings.

Based on calculations current delay at the 4 crossings range from ½ vehicle hour per day to 6 vehicle hours per day. Future conditions can not be adequately calculated because of no total ADT forecast for the 4 crossings.

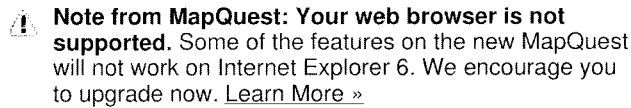
Sincerely,



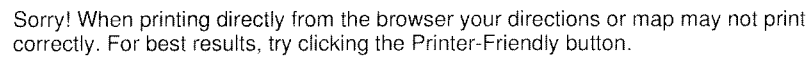
Robert Travis, PE  
State Railroad Liaison  
Arizona Department of Transportation  
205 S 17th Ave, Room 357  
MD 618E  
Phoenix, AZ 85007  
602-712-6193 602-712-3229 fax  
[rtravis@azdot.gov](mailto:rtravis@azdot.gov)

enclosures

cc: Marcel Benberou, ADOT  
Melvin Thomas, BNSF  
Barry Brown, CEI/ ADOT  
Mohammad Zaid, ADOT  
Robert Hansman, Dibble Engineering  
Suneel Garg, City of Surprise  
Vicki Steward, McDOT

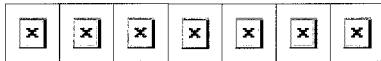


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Overall Crossing Map showing 4 crossings to be modified and alternate access points



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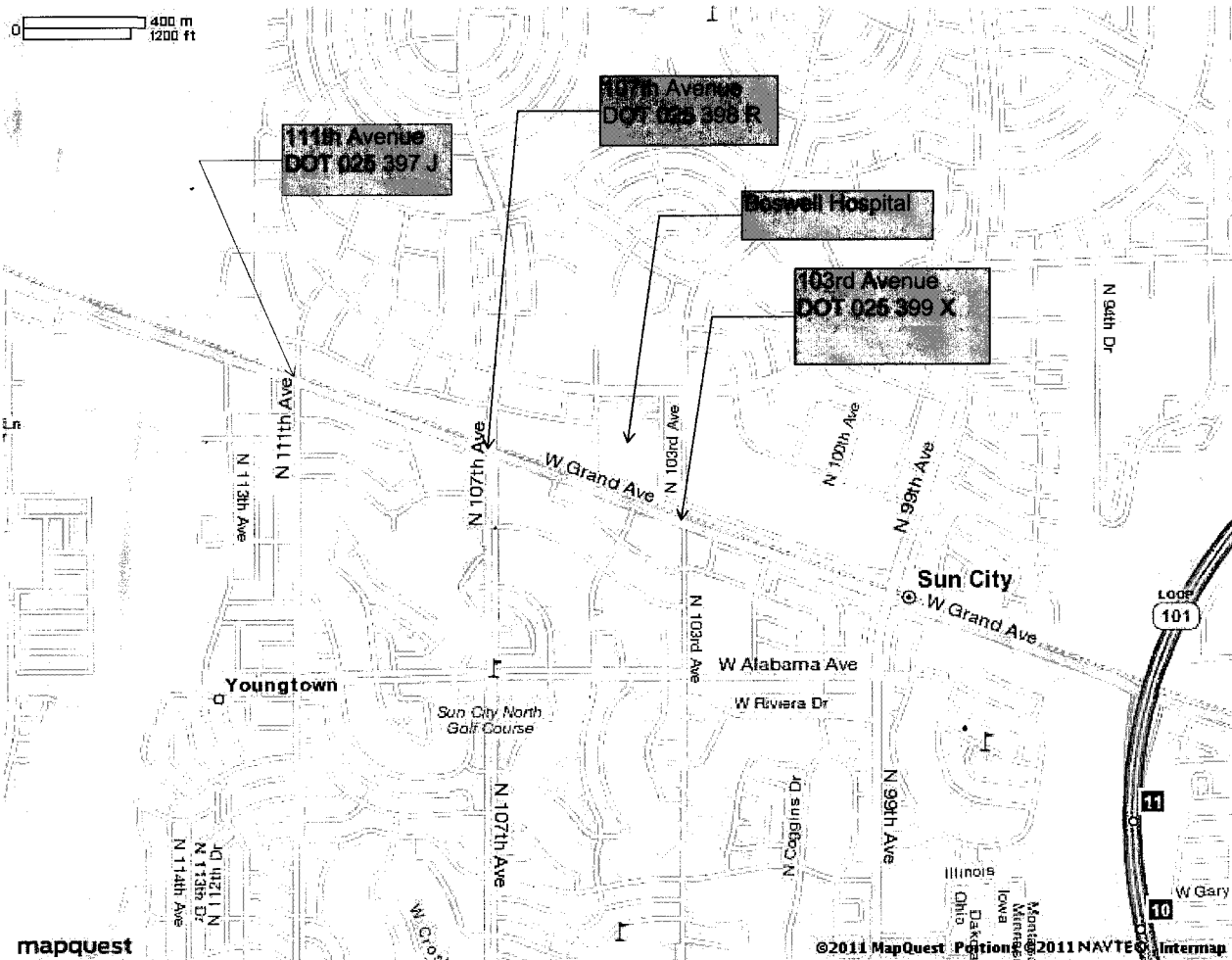
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# MAPQUEST

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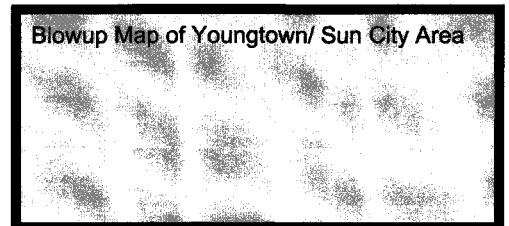
★ El Mirage, AZ



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Blowup Map of Youngtown/ Sun City Area



**STATE OF ARIZONA  
DEPARTMENT OF TRANSPORTATION**

TRACS No. 060 MA 139 H6866 01C \_\_\_\_\_  
Project No. ARRA-060-B-(201)A) \_\_\_\_\_  
Agreement 3100-08-BNSF \_\_\_\_\_

Location SR 303-99<sup>th</sup> Avenue  
Agreement Addendum No. 1  
Original Agreement AG Contract # KR\_P0012010002364 **TRN**

Company's Name BNSF Railway Company (BNSF)  
Address 740 E Carnegie Drive San Bernardino, CA 92408

BNSF hereby agrees to modify the existing referenced Agreement and to do the work hereinafter set forth for the Department of Transportation in accordance with the original agreement, the modified provisions of this form and of the attached sheets, if any, and BNSF agrees to receive and accept as full compensation therefore the payment provided in the agreement as modified herein.

**WHEREAS:** BNSF owns tracks and property adjacent to the project and Agreement 3100-08-BNSF was executed to allow BNSF to relocate their signals affected by the project, and;

**WHEREAS:** ADOT will be installing medians on both sides of the crossing, thus requiring a total of 4 gates and no cantilevers being installed, and;

**WHEREAS:** BNSF material and labor costs have increased,

**THEREFORE:** The parties hereto agree that Agreement No. 3100-08-BNSF is hereby amended as shown on the attached Exhibit 'A' to represent a cost increase of \$102,827.00 which reflects a new total Agreement Estimate of \$416,054.56. All other provisions of Agreement No. 3100-08-BNSF shall remain unabrogated.

The Department of Transportation hereby agrees to the terms as above set forth, and hereby agrees to pay same; provided, that by mutual consent this agreement may be modified or terminated at any time.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement.

ARIZONA DEPARTMENT OF TRANSPORTATION

BNSF Railway Company

By \_\_\_\_\_  
Marcel Benberou, Manager  
Utility & Railroad Engineering

By \_\_\_\_\_  
Melvin Thomas, Manager of Public Projects

Date \_\_\_\_\_

Date \_\_\_\_\_

**EXHIBIT A  
ADDENDUM 1 TO  
AGREEMENT 3100-08-BNSF  
TRACS 060 MA 139 H6866 01C  
PROJECT ARRA-060-B(201)A**

Updated signal Costs

Labor	\$190,098.00
Materials	\$121,412.00
Other (other, contingency, billing)	\$ 72,074.00
<i>Revised Signal Estimate subtotal</i>	<i>\$383,584.00</i>
Original Signal Estimate	(\$280,757.00)
Increased Signal Estimate	\$102,827.00
Original Agreement Total	\$313,227.56
Revised Agreement Total	<u>\$416,054.56</u>

BNSF RAILWAY COMPANY  
FHPM ESTIMATE FOR  
STATE OF ARIZONA

LOCATION SURPRISE TO WEST ENNIS

DETAILS OF ESTIMATE

PLAN ITEM : PSI025651J1

VERSION : 1

## PURPOSE, JUSTIFICATION AND DESCRIPTION

REVISED TO NEW PRICING LIST 09/04/03 (THERE WAS NO APPROVED MATERIAL LIST AT THIS TIME.)  
 REVISED TO NEW PRICING LIST 03/10/03 (THERE WAS NO APPROVED MATERIAL LIST AT THIS TIME.)

INSTALL NEW BUNGALOW, (4) FLASHERS WITH GATES AND REUSE EXSISTING GCP-3000 AT GREENWAY RD IN SURPRISE, AZ. L/S 7208,  
 MP 173.45, SOUTHWEST DIV., PHOENIX SUBDIV., DOT # 025651J  
 MONTHLY POWER UTILTIY COST CENTER: 61694

THE MATERIAL LIST BELOW REFLECTS TYPICAL REPRESENTIVE PACKAGES USED FOR ESTIMATING PURPOSE ONLY.  
 THEY CAN BE EXPECTED TO CHANGE AFTER THE ENGINEERING PROCESS, DETAILED AND ACCURATE MATERIAL LISTS WILL BE  
 FURNISHED WHEN ENGINEERING IS COMPLETED.  
 CONTINUING CONTRACTS HAVE BEEN ESTABLISHED FOR PORTIONS OF SIGNAL WORK ON THE BNSF RAILROAD.  
 THIS ESTIMATE GOOD FOR 90 DAYS. THEREAFTER THE ESTIMATE IS SUBJECT TO CHANGE IN COST FOR MATERIAL, LABOR, AND  
 OVERHEADS.

\*\*\*\*\* SIGNAL WORK ONLY \*\*\*\*\*

THE STATE OF ARIZONA IS FUNDING THIS PROJECT 100%.

MAINTAIN PROPRIETARY CONFIDENTIALITY

DESCRIPTION	QUANTITY	U/M	COST	TOTAL \$
*****				
LABOR				
*****				
SIGNAL FIELD LABOR - CAP	2160.0	MH	56,290	
SIGNAL SHOP LABOR - CAP	96.0	MH	2,525	
PAYROLL ASSOCIATED COSTS			40,504	
EQUIPMENT EXPENSES			18,320	
DA LABOR OVERHEADS			63,202	
INSURANCE EXPENSES			9,257	
TOTAL LABOR COST			190,098	190,098
*****				
MATERIAL				
*****				
ADVANCE PREEMPTION MTRL.	1.0	LS N	3,495	
ASSY HAWK 48 DIM	1.0	EA N	1,384	
BATTERY	1.0	LS N	11,428	
BUNGALOW 6X8	1.0	EA N	9,689	
BUNGALOW MATERIAL	1.0	LS N	7,125	
CABLE	1.0	LS N	12,186	
CHARGER	1.0	LS N	1,326	
CONDUIT, PVC 4", SCH 80	140.0	FT N	546	
ELECTRICAL MTRL	1.0	EA N	1,500	
FIELD MATERIAL	1.0	LS N	7,070	
FOUNDATION, STEEL	4.0	EA N	2,836	
GATE KEEPER	4.0	EA N	7,444	
GATE MECHANISM	4.0	EA N	29,852	
LED LIGHT ADJUSTMENT	18.0	EA N	4,338	
LED LIGHT GATE KIT	4.0	EA N	1,588	
LIGHT OUT DETECTOR	2.0	EA N	1,892	
RECORDER	1.0	EA N	3,135	
SHUNT	2.0	EA N	1,892	
SIDELIGHT ASSY., 1-WAT W/CANT	1.0	EA N	916	
TELLULAR MONITOR	1.0	EA N	2,600	
USE TAX			7,767	
OFFLINE TRANSPORTATION			1,403	
TOTAL MATERIAL COST			121,412	121,412
*****				
OTHER				
*****				
AC SERVICE	1.0	EA N	2,500	
CONTRACT ENGR.	1.0	EA N	8,000	
CONTRACTED FLAGGING	1.0	EA N	2,500	
DIRECTIONAL BORE	1.0	EA N	20,000	

SURFACE ROCK

30.0 CY N

750

TOTAL OTHER ITEMS COST

33,750

33,750

PROJECT SUBTOTAL

345,260

CONTINGENCIES

34,526

BILL PREPARATION FEE

3,798

GROSS PROJECT COST

383,584

LESS COST PAID BY BNSF

0

TOTAL BILLABLE COST

383,584

Exhibit A-2  
Addendum 1  
Agreement  
3100-08-BNSF  
Greenway Rd

# The Burlington Northern & Santa Fe Railway Company

TO WILLIAMS

TO PHOENIX

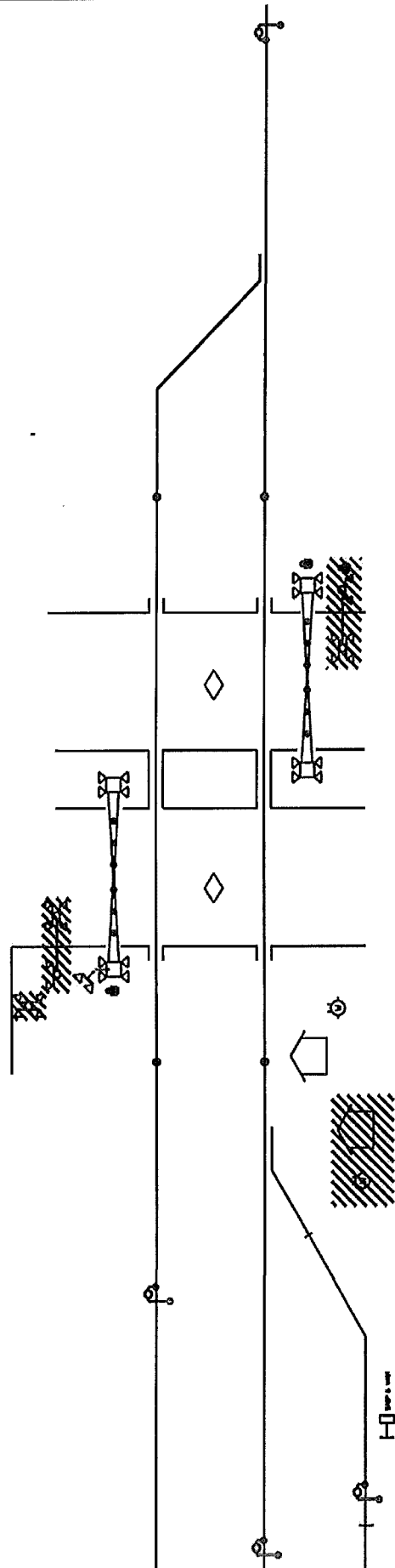
EASTWARD APPR. 3246'  
49 MPH

WESTWARD APPR. 3246'  
49 MPH

120' MIN.

50' MIN.

50' MIN.



INSTALL: GATES & FLASHERS

CONTROL DEVICES: REUSE CONSTANT WARNING

**BOLD - IN**

**OUT**

SALVAGE: NONE

GREENWAY ROAD

DOT # 025 651 J

Exhibit A-3  
Addendum 1  
Agreement  
3100-08-BNSF  
Greenway Road

INSTRUMENT HOUSE

BELL

METER

CROSSING CONTROL CONNECTIONS

BIDIRECTIONAL CROSSING CONTROL

UNIDIRECTIONAL CROSSING CONTROL

COUPLER OR TERMINATION

GUARD RAIL

Warning device placement:

Clearance to C.L. Track = Min. 12'

Edge of Road to C.L. Foundation:

Min. 4'3" with curb.

Min. 8'3" without curb.

Max. 12'

House Clearance:

25' Min. to Near Rail

30' Min. to Edge of Road

ALL LIGHTS TO BE LED

**BNSF RAILWAY CO.**

LOCATION: SURPRISE, AZ

STREET: GREENWAY ROAD

LS: 7208

M.P. 173.45

DOT # 025651J

DIVISION: SOUTHWEST

SUBDIVISION: PHOENIX

KANSAS CITY

NO SCALE

DATE: 09/07/10

FILE: 7208173 45.dgn

CRO



**STATE OF ARIZONA  
DEPARTMENT OF TRANSPORTATION**

TRACS No. 060 MA 139 H6866 01C  
Project No. ARRA-060-B-(201)A)  
Agreement 3113-08-BNSF

Location SR 303-99<sup>th</sup> Avenue  
Agreement Addendum No. 1  
Original Agreement AG Contract # KR P0012010002363 **TRN**

Company's Name BNSF Railway Company (BNSF)  
Address 740 E Carnegie Drive San Bernardino, CA 92408

BNSF hereby agrees to modify the existing referenced Agreement and to do the work hereinafter set forth for the Department of Transportation in accordance with the original agreement, the modified provisions of this form and of the attached sheets, if any, and BNSF agrees to receive and accept as full compensation therefore the payment provided in the agreement as modified herein.

**WHEREAS:** BNSF owns tracks and property adjacent to the project and Agreement 3113-08-BNSF was executed to allow BNSF to relocate their signals affected by the project, and;

**WHEREAS:** BNSF has determined that the crossing signal costs will increase in order to install constant warning detection equipment, replace worn out equipment and for increased labor and materials costs, and;

**THEREFORE:** The parties hereto agree that Agreement No. 3113-08-BNSF is hereby amended as shown on the attached Exhibit 'A' to represent a cost increase of \$322,371.00 which reflects a new total Agreement Estimate of \$341,223.74. All other provisions of Agreement No. 3113-08-BNSF shall remain unabrogated.

The Department of Transportation hereby agrees to the terms as above set forth, and hereby agrees to pay same; provided, that by mutual consent this agreement may be modified or terminated at any time.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement.

ARIZONA DEPARTMENT OF TRANSPORTATION

BNSF Railway Company

By \_\_\_\_\_  
Marcel Benberou, Manager  
Utility & Railroad Engineering

By \_\_\_\_\_  
Name \_\_\_\_\_

Title \_\_\_\_\_

Date \_\_\_\_\_

Date \_\_\_\_\_

**EXHIBIT A  
ADDENDUM 1 TO  
AGREEMENT 3113-08-BNSF  
TRACS 060 MA 139 H6866 01C  
PROJECT ARRA-060-B(201)A**

Updated signal Costs

Labor	\$138,874.00
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Materials	\$134,827.00
-----------	--------------

Other (other, contingency, billing)	<u>\$ 64,822.00</u>
-------------------------------------	---------------------

<i>Revised Signal Estimate subtotal</i>	<i>\$338,523.00</i>
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Original Signal Estimate	\$ 16,152.00
--------------------------	--------------

Increased Signal Estimate	\$322,371.00
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Original Agreement Total	\$ 18,852.74
--------------------------	--------------

Revised Agreement Total	<u>\$341,223.74</u>
-------------------------	---------------------

\*\*\*\*\* MAINTAIN PROPRIETARY CONFIDENTIALITY \*\*\*\*\*

BNSF RAILWAY COMPANY  
FHPM ESTIMATE FOR  
STATE OF ARIZONA

LOCATION SUN CITY DETAILS OF ESTIMATE PLAN ITEM : PSI025397J VERSION : 1

PURPOSE, JUSTIFICATION AND DESCRIPTION

INSTALL CONSTANT WARNING AND (4) FLASHERS WITH GATES AT 111TH AVE IN SUN CITY, AZ. SOUTHWEST DIV., PHOENIX SUBDIV.,  
L/S 7208, M.P. 175.79, DOT # 025397J

MONTHLY POWER UTILITY COST CENTER : XXXXX

CONTINUING CONTRACTS HAVE BEEN ESTABLISHED FOR PORTIONS OF SIGNAL WORK ON THE BNSF RAILROAD.  
THIS ESTIMATE IS GOOD FOR 90 DAYS. THEREAFTER THE ESTIMATE IS SUBJECT TO CHANGE IN COST FOR LABOR, MATERIAL, AND  
OVERHEAD.

MAINTAIN PROPRIETARY CONFIDENTIALITY.

REVISED TO NEW PRICING LIST 09/04/03

THE MATERIAL LIST BELOW REFLECTS TYPICAL REPRESENTATIVE PACKAGES USED FOR ESTIMATING PURPOSE ONLY.  
THEY CAN BE EXPECTED TO CHANGE AFTER THE ENGINEERING PROCESS, DETAILED AND ACCURATE MATERIAL LISTS WILL BE  
FURNISHED WHEN ENGINEERING IS COMPLETED.

\*\*\*\*\* SIGNAL WORK ONLY \*\*\*\*\*

THE STATE OF ARIZONA IS FUNDING THIS PROJECT 100%.

DESCRIPTION	QUANTITY	U/M	COST	TOTAL \$
*****				
LABOR				
*****				
SIGNAL FIELD LABOR - CAP	1568.0	MH	40,863	
SIGNAL SHOP LABOR - CAP	80.0	MH	2,104	
PAYROLL ASSOCIATED COSTS			29,591	
EQUIPMENT EXPENSES			13,383	
DA LABOR OVERHEADS			46,171	
INSURANCE EXPENSES			6,762	
TOTAL LABOR COST			138,874	138,874
*****				
MATERIAL				
*****				
ADVANCE PRE-EMPTION MTRL.	1.0	LS N	3,495	
ASSY HAWK 48 DIM	1.0	EA N	1,384	
BATTERY	1.0	LS N	11,428	
BUNGALOW 6X6	1.0	EA N	8,612	
BUNGALOW MATERIAL	1.0	LS N	7,125	
CABLE	1.0	LS N	12,186	
CHARGER	1.0	LS N	1,326	
CONSTANT WARNING	1.0	EA N	18,383	
FIELD MATERIAL	1.0	LS N	7,070	
FOUNDATION, STEEL	4.0	EA N	2,836	
GATE MECHANISM	4.0	EA N	29,852	
LED LIGHT ADJUSTMENT	16.0	EA N	3,856	
LED LIGHT GATE KIT	4.0	EA N	1,588	
LIGHT OUT DETECTOR	2.0	EA N	1,892	
MATERIAL FOR ELECTRICAL	1.0	LS N	3,500	
MDSA-2	1.0	EA N	588	
RECORDER	1.0	EA N	3,135	
SHUNT	2.0	EA N	1,892	
SHUNT, FOR THOMPSON RD.	2.0	EA N	1,892	
TELLULAR DEVICE	1.0	EA N	2,600	
USE TAX			8,627	
OFFLINE TRANSPORTATION			1,560	
TOTAL MATERIAL COST			134,827	134,827

Exhibit A-1  
Addendum 1  
Agreement  
3113-08-BNSF  
111th Ave

\*\*\*\*\*

OTHER

\*\*\*\*\*

CONTRACT ENGR

1.0 EA N

8,000

CONTRACT PRE-EMPTION

1.0 EA N

3,000

DIRECTIONAL BORE

1.0 LS N

20,000

TOTAL OTHER ITEMS COST

31,000

31,000

PROJECT SUBTOTAL

304,701

CONTINGENCIES

30,470

BILL PREPARATION FEE

3,352

GROSS PROJECT COST

338,523

LESS COST PAID BY BNSF

0

TOTAL BILLABLE COST

338,523

Exhibit A-2  
Addendum 1  
Agreement  
3113-08-BNSF  
111th Ave

# The Burlington Northern & Santa Fe Railway Company

TO WILLIAMS JCT.

TO PHOENIX

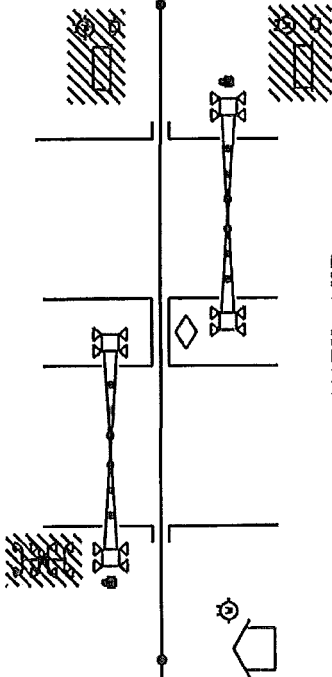
EASTWARD APPR. 2443'  
49 MPH

120' MIN.

WESTWARD APPR. 2443'  
49 MPH

50' MIN.

50' MIN.



111TH AVE.  
DOT # 025 397 J

INSTALL: GATES & FLASHERS

CONTROL DEVICES: CONSTANT WARNING

**BOLD - IN**

**OUT**

SALVAGE: NONE

Exhibit A-3  
Addendum 1  
Agreement  
3113-08-BNSF  
111th Avenue

INSTRUMENT HOUSE



BELL

METER

CROSSING CONTROLL CONNECTIONS

BIDIRECTIONAL CROSSING CONTROL

UNIDIRECTIONAL CROSSING CONTROL

COUPLER OR TERMINATION

GUARD RAIL

Warning device placement:

Clearance to C.L. Track = Min. 12'

Edge of Road to C.L. Foundation:

Min. 4'3" with curb,

Min. 8'3" without curb,

Max. 12'

House Clearance:

25' Min. to Near Rail

30' Min. to Edge of Road

ALL LIGHTS TO BE LED

BNSF RAILWAY CO.

LOCATION: SUN CITY, AZ

STREET: 111TH AVE

LS: 7208

M.P. 175.79

DOT # 025397J

DIVISION: SOUTHWEST

SUBDIVISION: PHOENIX

KANSAS CITY

NO SCALE

DATE: 09/07/10

FILE: 7208175 79.dgn

CRO

**STATE OF ARIZONA  
DEPARTMENT OF TRANSPORTATION**

TRACS No. 060 MA 139 H6866 01C  
Project No. ARRA-060-B-(201)A  
Agreement 3114-08-BNSF

Location SR 303-99<sup>th</sup> Avenue

Agreement Addendum No. 1  
Original Agreement AG Contract # **KR P0012010002362 TRN**

Company's Name BNSF Railway Company (BNSF)  
Address 740 E Carnegie Drive San Bernardino, CA 92408

BNSF hereby agrees to modify the existing referenced Agreement and to do the work hereinafter set forth for the Department of Transportation in accordance with the original agreement, the modified provisions of this form and of the attached sheets, if any, and BNSF agrees to receive and accept as full compensation therefore the payment provided in the agreement as modified herein.

WHEREAS: BNSF owns tracks and property adjacent to the project and Agreement 3114-08-BNSF was executed to allow BNSF to relocate their signals affected by the project, and;

WHEREAS: BNSF has determined that the crossing signal costs will increase in order to install constant warning detection equipment and for increased labor and materials costs, and;

THEREFORE: The parties hereto agree that Agreement No. 3114-08-BNSF is hereby amended as shown on the attached Exhibit 'A' to represent a cost increase of \$124,732.00 which reflects a new total Agreement Estimate of \$322,680.86. All other provisions of Agreement No. 3114-08-BNSF shall remain unabrogated.

The Department of Transportation hereby agrees to the terms as above set forth, and hereby agrees to pay same; provided, that by mutual consent this agreement may be modified or terminated at any time.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement.

ARIZONA DEPARTMENT OF TRANSPORTATION

BNSF Railway Company

By \_\_\_\_\_  
Marcel Benberou, Manager  
Utility & Railroad Engineering

By \_\_\_\_\_  
Melvin Thomas, Manager of Public Projects

Date \_\_\_\_\_

Date \_\_\_\_\_

**EXHIBIT A  
ADDENDUM 1 TO  
AGREEMENT 3114-08-BNSF  
TRACS 060 MA 139 H6866 01C  
PROJECT ARRA-060-B(201)A**

<u>Updated signal Costs</u>	
Labor	\$120,282.00
Materials	\$143,601.00
Other (other, contingency, billing)	\$ 55,122.00
<i>Revised Signal Estimate subtotal</i>	<i>\$319,005.00</i>
Original Signal Estimate	(\$194,273.00)
Increased Signal Estimate	\$124,732.00
Original Agreement Total	\$197,948.86
Revised Agreement Total	<u>\$322,680.86</u>

BNSF RAILWAY COMPANY  
FHPM ESTIMATE FOR  
STATE OF ARIZONA

LOCATION	SUN CITY	DETAILS OF ESTIMATE	PLAN ITEM : PSI025398R	VERSION : 1
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## PURPOSE, JUSTIFICATION AND DESCRIPTION

REVISED TO NEW PRICING LIST 09/04/03 (THERE WAS NO APPROVED MATERIAL LIST AT THIS TIME.)  
 INSTALL CONSTANT WARNING, (4) FLASHERS WITH GATES, (1) CANTILEVER AND (1) RETIRED BUNGALOW FROM ADJ. XING, AT 107TH AVENUE IN SUN CITY, AZ. L/S 7208, MP 176.33, SOUTHWEST DIV., PHOENIX SUBDIV., DOT # 025398R  
 MONTHLY POWER UTILITY COST CENTER:  
 THE MATERIAL LIST BELOW REFLECTS TYPICAL REPRESENTATIVE PACKAGES USED FOR ESTIMATING PURPOSE ONLY.  
 CONTINUING CONTRACTS HAVE BEEN ESTABLISHED FOR PORTIONS OF SIGNAL WORK ON THE BNSF RAILROAD.  
 THIS ESTIMATE GOOD FOR 90 DAYS. THEREAFTER THE ESTIMATE IS SUBJECT TO CHANGE IN COST FOR MATERIAL, LABOR, AND OVERHEADS.

THE STATE OF ARIZONA IS FUNDING THIS PROJECT 100%.

MAINTAIN PROPRIETARY CONFIDENTIALITY

THEY CAN BE EXPECTED TO CHANGE AFTER THE ENGINEERING PROCESS, DETAILED AND ACCURATE MATERIAL LISTS WILL BE FURNISHED WHEN ENGINEERING IS COMPLETED.

\*\*\*\*\* SIGNAL WORK ONLY \*\*\*\*\*  
 REVISED TO NEW PRICING LIST 09/04/03

DESCRIPTION	QUANTITY	U/M	COST	TOTAL \$
*****				
LABOR				
*****				
SIGNAL FIELD LABOR - CAP	1428.0	MH	37,214	
PAYROLL ASSOCIATED COSTS			25,629	
EQUIPMENT EXPENSES			11,592	
DA LABOR OVERHEADS			39,990	
INSURANCE EXPENSES			5,857	
TOTAL LABOR COST			120,282	120,282
*****				
MATERIAL				
*****				
ADVANCE PREEMTION MTRL.	1.0	LS N	3,495	
ASSY HAWK 48 DIM	1.0	EA N	1,384	
BATTERY	1.0	LS N	11,428	
BUNGALOW MATERIAL	1.0	LS N	4,125	
CABLE	1.0	LS N	12,186	
CANTILEVER COMPLETE	1.0	EA N	19,250	
CHARGER	1.0	LS N	1,326	
CONSTANT WARNING	1.0	EA N	18,383	
FIELD MATERIAL	1.0	LS N	7,070	
FOUNDATION, STEEL	4.0	EA N	2,836	
GATE MECHANISM	4.0	EA N	29,852	
GUARDRAIL, DUAL	1.0	EA N	673	
GUARDRAIL, ONE-HALF OVAL	1.0	EA N	458	
LED LIGHT ADJUSTMENT	24.0	EA N	5,784	
LED LIGHT GATE KIT	4.0	EA N	1,588	
LIGHT OUT DETECTOR	2.0	EA N	1,892	
MDSA-2	1.0	EA N	588	
RECORDER	1.0	EA N	3,135	
SHUNT	2.0	EA N	1,892	
SHUNT, FOR 91ST AVENUE	2.0	EA N	1,892	
SIDELIGHT ASSY., 1-WAY W/CANT	1.0	EA N	916	
TELLULAR DEVICE	1.0	EA N	2,600	
USE TAX			9,188	
OFFLINE TRANSPORTATION			1,660	
TOTAL MATERIAL COST			143,601	143,601
*****				
OTHER				
*****				
AC SERVICE	1.0	EA N	1,500	
CONCRETE/FOUNDATION CANT.	1.0	LS N	2,000	



CONTRACT ENGR.	1.0 EA N	8,000	
CONTRACT PRE-EMPTION	1.0 EA N	3,000	
CONTRACT SIGNS/CONES	1.0 LS N	3,000	
DIRECTIONAL BORE	1.0 LS N	4,500	
SURFACE ROCK	50.0 CY N	1,250	
TOTAL OTHER ITEMS COST		23,250	23,250
PROJECT SUBTOTAL			287,133
CONTINGENCIES			28,713
BILL PREPARATION FEE			3,159
GROSS PROJECT COST			319,005
LESS COST PAID BY BNSF			0
TOTAL BILLABLE COST			319,005

Exhibit A-2  
Addendum 1  
Agreement  
3114-08-BNSF  
107th Ave

# The Burlington Northern & Santa Fe Railway Company

TO WILLIAMS

TO MOBEST

EASTWARD APPR. 2112'  
40 MPH

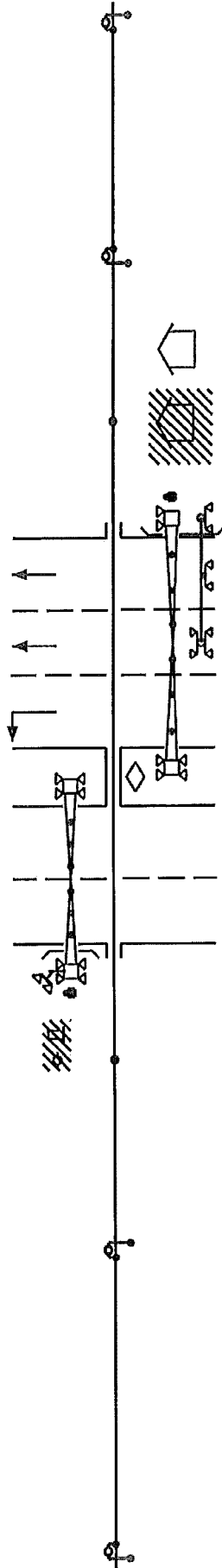
WESTWARD APPR. 2112'  
40 MPH

120' MIN.

50' MIN.

77'

50' MIN.



107TH AVE.  
DOT = 025 398 R

INSTALL: CANTILEVER GATES & FLASHERS

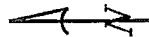
CONTROL DEVICES: CONSTANT WARNING

**BOLD - IN**

- OUT

SALVAGE: NONE

Exhibit A-3  
Addendum 1  
Agreement  
3114-08-BNSF  
107th Avenue



INSTRUMENT HOUSE



BELL



METER



CROSSING CONTROL CONNECTIONS



BIDIRECTIONAL CROSSING CONTROL



UNIDIRECTIONAL CROSSING CONTROL



COUPLER OR TERMINATION



GUARD RAIL



**BNSF RAILWAY CO.**

LOCATION: SUN CITY, AZ

STREET: 107TH AVE

LS: 7208

M.P. 176.33

DOT = 025398R

DIVISION: SOUTHWEST

SUBDIVISION: PHOENIX

KANSAS CITY

NO SCALE

DATE: 09/07/10

FILE: 7208176 33.dgn

CRO

Warning device placement:

Clearance to C.L. Track = Min. 12'

Edge of Road to C.L. Foundation:

Min. 5'3" with curb.

Min. 9'3" without curb.

Max. 12'

25' Min. to Near Rail

30' Min. to Edge of Road

ALL LIGHTS TO BE LED

House Clearance:

**STATE OF ARIZONA  
DEPARTMENT OF TRANSPORTATION**

TRACS No. 060 MA 139 H6866 01C  
Project No. ARRA-060-B-(201)A  
Agreement 3115-08-BNSF

Location SR 303-99<sup>th</sup> Avenue

Agreement Addendum No. 1  
Original Agreement AG Contract # **KR P0012010002361TRN**

Company's Name BNSF Railway Company (BNSF)  
Address 740 E Carnegie Drive San Bernardino, CA 92408

BNSF hereby agrees to modify the existing referenced Agreement and to do the work hereinafter set forth for the Department of Transportation in accordance with the original agreement, the modified provisions of this form and of the attached sheets, if any, and BNSF agrees to receive and accept as full compensation therefore the payment provided in the agreement as modified herein.

**WHEREAS:** BNSF owns tracks and property adjacent to the project and Agreement 3115-08-BNSF was executed to allow BNSF to relocate their signals affected by the project, and;

**WHEREAS:** BNSF has determined that the crossing signal costs will increase in order to install constant warning detection equipment and for increased labor and materials costs, and;

**THEREFORE:** The parties hereto agree that Agreement No. 3115-08-BNSF is hereby amended as shown on the attached Exhibit 'A' to represent a cost increase of \$85,435 which reflects a new total Agreement Estimate of \$289,242.40. All other provisions of Agreement No. 3115-08-BNSF shall remain unabrogated.

The Department of Transportation hereby agrees to the terms as above set forth, and hereby agrees to pay same; provided, that by mutual consent this agreement may be modified or terminated at any time.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement.

ARIZONA DEPARTMENT OF TRANSPORTATION

BNSF Railway Company

By \_\_\_\_\_  
Marcel Benberou, Manager  
Utility & Railroad Engineering

By \_\_\_\_\_  
Melvin Thomas, Manager of Public Projects

Date \_\_\_\_\_

Date \_\_\_\_\_

**EXHIBIT A  
ADDENDUM 1 TO  
AGREEMENT 3115-08-BNSF  
TRACS 060 MA 139 H6866 01C  
PROJECT ARRA-060-B(201)A**

<u>Updated signal Costs</u>	
Labor	\$117,921.00
Materials	\$118,148.00
Other (other, contingency, billing)	\$ 50,367.00
<i>Revised Signal Estimate subtotal</i>	<i>\$286,436.00</i>
Original Signal Estimate	\$201,001.00
Increased Signal Estimate	\$ 85,435.00
Original Agreement Total	\$203,807.40
Revised Agreement Total	<u>\$289,242.40</u>

BNSF RAILWAY COMPANY  
FHPM ESTIMATE FOR  
STATE OF ARIZONA

LOCATION SUN CITY DETAILS OF ESTIMATE PLAN ITEM : PSI025399X VERSION : 1

PURPOSE, JUSTIFICATION AND DESCRIPTION

REVISED TO NEW PRICING LIST 09/04/03 (THERE WAS NO APPROVED MATERIAL LIST AT THIS TIME.)  
INSTALL CONSTANT WARNING, A RETIRED BUNGALOW FROM AN ADJ. XING, REUSE EXISTING FLASHER WITH GATES AND INSTALL (2)  
NEW CANTILEVERS AT 103RD AVENUE STREET IN SUN CITY, AZ. L/S 7208, MP 176.85, SOUTHWEST DIV., PHOENIX SUBDIV., DOT #  
025399X  
MONTHLY POWER UTILITY COST CENTER:  
THE MATERIAL LIST BELOW REFLECTS TYPICAL REPRESENTATIVE PACKAGES USED FOR ESTIMATING PURPOSE ONLY.  
CONTINUING CONTRACTS HAVE BEEN ESTABLISHED FOR PORTIONS OF SIGNAL WORK ON THE BNSF RAILROAD.  
THIS ESTIMATE GOOD FOR 90 DAYS. THEREAFTER THE ESTIMATE IS SUBJECT TO CHANGE IN COST FOR MATERIAL, LABOR, AND  
OVERHEADS.

THE STATE OF ARIZONA IS FUNDING THIS PROJECT 100%.

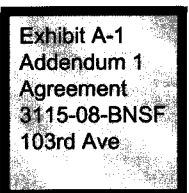
MAINTAIN PROPRIETARY CONFIDENTIALITY

THEY CAN BE EXPECTED TO CHANGE AFTER THE ENGINEERING PROCESS, DETAILED AND ACCURATE MATERIAL LISTS WILL BE  
FURNISHED WHEN ENGINEERING IS COMPLETED.

\*\*\*\*\* SIGNAL WORK ONLY \*\*\*\*\*

REVISED TO NEW PRICING LIST 09/04/03

DESCRIPTION	QUANTITY U/M	COST	TOTAL \$
***** LABOR *****			
SIGNAL FIELD LABOR - CAP	1400.0 MH	36,484	
PAYROLL ASSOCIATED COSTS		25,126	
EQUIPMENT EXPENSES		11,364	
DA LABOR OVERHEADS		39,205	
INSURANCE EXPENSES		5,742	
TOTAL LABOR COST		117,921	117,921
***** MATERIAL *****			
ADVANCE PRE-EMPTION MTRL.	1.0 LS N	3,495	
BATTERY	1.0 EA N	9,145	
BUNGALOW MATERIAL	1.0 LS N	4,764	
CABLE	1.0 EA N	9,497	
CANTILEVER COMPLETE	2.0 EA N	38,500	
CHARGER	1.0 LS N	1,320	
CONSTANT WARNING	1.0 EA	18,383	
ELECTRICAL MTRL	1.0 EA	1,500	
FIELD MATERIAL	1.0 LS N	4,182	
LAMP RESISTOR	1.0 EA N	865	
LED LIGHT ADJUSTMENT	24.0 EA N	5,784	
LED LIGHT GATE KIT	2.0 EA N	794	
LIGHT OUT DETECTOR	1.0 EA N	946	
MDSA-2	1.0 EA N	588	
RECORDER	1.0 EA N	3,135	
SHUNT, NBS	2.0 EA N	1,890	
SIDELIGHT ASSY, I-WAY, W/ CANT	1.0 EA N	915	
TELLULAR DEVICE	1.0 EA N	2,600	
MATERIAL HANDLING		994	
USE TAX		7,496	
OFFLINE TRANSPORTATION		1,355	
TOTAL MATERIAL COST		118,148	118,148
***** OTHER *****			
AC SERVICE	1.0 EA N	1,500	
CONCRETE/FOUNDATION CANT.	2.0 LS N	3,000	
CONTRACT ENGR.	1.0 EA N	8,000	
CONTRACT PRE-EMPTION	1.0 EA N	3,000	



CONTRACT SIGNS/CONES	1.0 EA N	3,000	
DIRECTIONAL BORE	1.0 EA N	2,500	
SURFACE ROCK	30.0 CY N	750	
TOTAL OTHER ITEMS COST		21,750	21,750
PROJECT SUBTOTAL			257,819
CONTINGENCIES			25,781
BILL PREPARATION FEE			2,836
GROSS PROJECT COST			286,436
LESS COST PAID BY BNSF			0
TOTAL BILLABLE COST			286,436

Exhibit A-2  
Addendum 1  
Agreement  
3115-08-BNSF  
103rd Ave

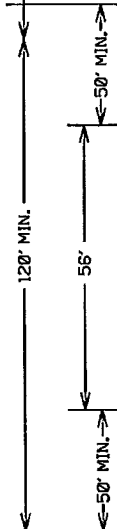
# BNSF RAILWAY COMPANY

TO PHOENIX

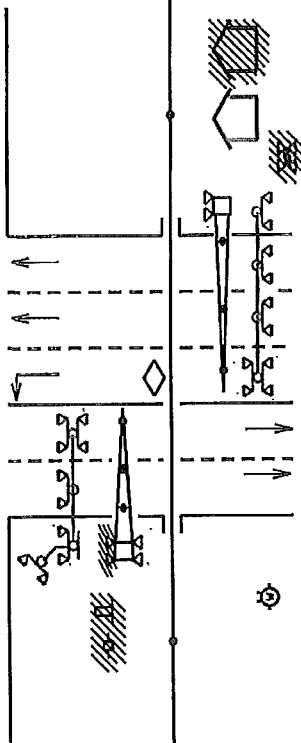
TO WILLIAMS JCT

EASTWARD APPR. 2012'  
49 MPH

WESTWARD APPR. 2012'  
49 MPH



US 60 / GRAND AVE.



103RD AVENUE  
DOT = 025 399 X

INSTALL: CANTLEVERS & REUSE EXISTING GATES

CONTROL DEVICES: REUSE PMD-2

**BOLD - IN**

**/// - OUT**

SALVAGE: NONE

INSTRUMENT HOUSE

BELL

METER

CROSSING CONTROLL CONNECTIONS

BIDIRECTIONAL CROSSING CONTROL

UNIDIRECTIONAL CROSSING CONTROL

COUPLER OR TERMINATION

GUARD RAIL

Warning device placement:

Clearance to C.L. Track = Min. 12'

Edge of Road to C.L. Foundation:

Min. 5'3" with curb.

Min. 9'3" without curb.

Max. 12'

25' Min. to Near Rail

30' Min. to Edge of Road

ALL LIGHTS TO BE LED

House Clearance:

Exhibit A-3  
Addendum 1  
Agreement  
3115-08-BNSF  
103rd Avenue

**BNSF RAILWAY CO.**

LOCATION: SUN CITY, AZ.

STREET: 103RD AVENUE

LS: 7208

M.P. 176.85

DOT = 025 399 X

DIVISION: SOUTHWEST

SUBDIVISION: PHOENIX

KANSAS CITY

NO SCALE

DATE: 02/02/09

FILE: 7208176 85.dgn

CMB